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## ORIGINAL ARTICLES.

### A CASE ILLUSTRATING THE CRANIAL RADICULITIS OF TERTIARY SYPHILIS.

DISCUSSION OF PATHOLOGY OF CRANIAL NERVES IN TABES.

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In the case now to be described (see *Am. J. Med. Sci.*, March, 1910) a meningitis of long standing, no longer in activity, had left its trace merely in hyperplasia of the connective tissue of the nerve and partial destruction of the noble elements. The patient was a woman of fifty-one years, married at eighteen, with five healthy children and two miscarriages, the last in 1885 accompanied by sore throat and followed by an attack of headache, delirium, convulsions and coma. It was most probably a meningitis; for she remained quite blind, and had frequent attacks of focal epilepsy on the left side.

In 1891 Gombault had found psoriasis, blindness, laryngeal trouble, and focal epilepsy, the last disappearing. On admission, the nutrition was good. There was a syphilitic perforation of the palate.

There was gray atrophy of the optic papillæ with contraction of the vessels. Even light was unperceived. There was partial ptosis, especially of the left lid. Ocular convergence was impossible. Internal lateral movements could not be accomplished, nor could the raising or lowering of the globes; but the external movements could be performed. The left pupil was larger than the right. There was no reaction to light, and that on attempting convergence and distant regard was de-

fective. The sensibility of the cornea, and the reflex lacrimal secretion were present. Bilateral nystagmoid movements occurred.

Thus there was complete paralysis of all the acts governed by the third nerve, with the exception of the pupillary reaction upon accommodation, convergence and distance. Respiration was more rapid than normal, 28 per minute. It was interrupted by paroxysms, especially after excitement. During these, breathlessness and angoisse appeared, a "whooping" cough distressed her, the face reddened and there was often abundant secretion of tears and saliva.

Phonation was rough, bitonal, nasal and often almost inaudible. The right vocal cord was paralyzed, and the right side of the tongue was atrophied, corrugated, and showed fibrillary twitchings. There was, perhaps, a little facial asymmetry. There were no basal crises, nor bulbar trouble other than the foregoing. However, it was a typical case of basal tabes as regards the cranial symptoms.

There were no tabetic symptoms in the lower limbs; but the deep reflexes were exaggerated, and the toes sometimes extended when stroking the sole. There were occasional lightning pains, but no visceral incontinences, and no other trouble of the nervous functions. Lumbar puncture showed an intense lymphocytosis. The diagnosis was clearly basilar meningitis, superior tabes.

During the two years which elapsed before her death few new symptoms appeared. The Jacksonian epilepsy reappeared. It was probably due to an area of cerebral softening found post mortem in the right hemisphere. The ocular palsies improved, although she never succeeded in convergence or holding the eye for more than an instant towards the inner canthus. The atrophy of the tongue, however, persisted.

At the *autopsy*, the meninges did not appear diseased, and the cranial nerves seemed unaltered in volume, except the optic nerve which had shrunken to about the size of a normal oculomotor. The right angular gyrus showed an old softening about the size of a quarter.

Under the microscope, the spinal cord revealed no degeneration of the posterior roots nor of the posterior columns, where the internal bandelette was quite intact. The anterior roots were also normal.

The optic nerve showed characteristic tabetic atrophy, not a single nerve fiber being preserved. The connective tissue pre-

sented a very severe endo- and peri-neuritis, with arteriitis of the type described by Marie and Leri, and due to transverse radiculitis; there was no lesion of the brain or eye to account for it.

In the oculo-motor nerves the lesions were nearly identical on the two sides. That of the left showed (four millimeters after entering the parieties of the cavernous sinus) (see *A. J. M. Sci., loc. cit.*), a distinct focus of the transverse radicular neuritis. This was characterized by the hypertrophy of the nerve, but above all by the presence in its interior of vast bands of fibrous tissue which disassociated and left only a few intact fasciculi.

Further down, it was not so intense, and it had disappeared 5½ millimetres after the entry of the nerve into the sinus. Thus its length was only 1½ millimetres. It corresponded to the spot just behind the place where the nerve is divided into compartments by the layer of connective tissue which accompanies its anastomonic branches.

At the parting, the *normal nerve* becomes divided into compartments by the connective tissue which in a few millimetres disappears. This is the spot where the endo-neuritis has occurred. A little higher up one sees the line of the sub-arachnoid inflammation, now absorbed. The thickened vessel, and the tucks of fibrous tissue indicate this. That the inflammatory process has not quite subsided is shown with hematein-eosin-orange stain (see original memoir).* This shows that the nerve is still crammed with nuclei, and that the neighboring meninges are much altered, even obliterated, endo-neuritis appearing, and that the inflammation is still present outside the sheath of the nerve, with the characteristic lymphocytes and above all plasma cells with the perinuclear halo.

Thus it is clear that we have over both third nerves the cicatrix of an old inflammatory focus of localized interstitial neuritis.

*The Nerve Fibers.*—The Weigert method shows the paleness of some of the nerve fibers among the dark violet of those remaining normal. Osmic acid shows the dwarfed and pale fibers, as in a preceding case (*Med. Rec.*, Feb., 1910); but above all, it reveals islands of regeneration. Both above and below the site of the lesion these islands are quite abundant, so that under low power the nerve might be thought normal; but a high power

*Vincent. Thèse de Paris, 1910.

shows that the fibers they contain are often very small, squeezed together, without any connective tissue intervening. Serial sections show that they have come from a single nerve fiber which buds out and follows an old neurilemma tract. They are significative of the presence of a noxa in some part of the course of the nerve, and they explain the manner in which certain tabetic palsies so much improve. In this case they are seen throughout the whole of the periphery of the nerve, especially in the fine branches penetrating the muscles, where their separation of the branches renders their study easier. The hypoglossal nerve of this case shows changes in the nerve fiber similar to those of a previous case, and to those of the third nerve, in that its nucleus was untouched. It is this which accounts for the absence of the muscular atrophy in these cases.

The nuclei of none of the cranial nerves showed any alteration, although carefully studied in *serial sections;* so that we may conclude that in this, a focus of interstitial neuritis was the cause of the tabetic symptoms. Although even this intense lesion had not completely destroyed the functional efficiency of any nerve except the optic, yet it is conceivable that such destruction may, and indeed must, occur as is shown by the lingual hemiatrophy of this case, and the fascicular palsy and R. D. of the muscles found in tabetics in varying proportions.

*Why the oculo-motor nerves are so easily attacked by and so readily recover from syphilis.*—Now, although this case does not explain the genesis of the Argyll-Robertson pupil, it does furnish the missing link in the chain of evidence required to explain the fugitive palsies of the ocular muscles which so often occur in the course of tabes. For though in this case the palsies were persistent, another series of facts makes it clear why they are not so in all cases. For example, Vincent (Thèse de Paris, 1910) examined another case of tabes with only mild cranial nerve symptoms in which unfortunately the oculo-motor nerves were spoilt at the post-morten but in which the hypoglossal, which is also an anterior root homologue, showed the commencement of changes as a result of the progress of which the appearances in our present case ensue. Although no clinical symptoms had appeared, in spite of a considerable endoneuritis and loss of quite a large number of fibers in the hypoglossal, yet this is easily accounted for by the wide distribution among the tongue muscles of each fasciculus of the 12th nerve, so that each part of the tongue has retained at least some muscle fibers of

which the innervation persists, to enable the tongue to perform its movements without apparent impairment.

Very different is the result when only a few nerve fibers supplying an oculo-motor nerve are attacked. A very slight diminution of the innervation conveyed for example by the 6th nerve to the abducens muscle interferes with the delicate muscle balance needed for the adjustment of the optic axis in binocular vision. Hence, the derangement is at once manifested clinically as a paralytic diplopia. The thinness of the abducens nerve makes it particularly liable to implication in the inflammatory process of the leptomeninges as it traverses its long course at the base of the brain.

*Meningitis in secondary syphilis.*—Why then does the paralysis usually clear up in a few days, unlike the present case? This question is answered by another series of facts, more especially conspicuous in what has been called the secondary stage of syphilitic affection. It is now known that even in this stage the meninges are inflamed quite often; Buttino believes in 40 per cent. of the cases.

In addition to the general symptoms, such as headache, exaggerated reflexes, hyper-irritability, and sometimes even Kernig's sign, quite a number of cases exhibit focal symptoms, such as facial paresis, local vasomotor changes and neuralgias. It is the rule for these to clear up along with the meningism, sometimes even without treatment. This only conforms to the tendency of the processes of lues venerea to resolve like those of other infective diseases.

It has been supposed that the tertiary lesions differ in this respect; but it is becoming evident that no distinction of kind really exists between the periods of syphilis; for on the one hand, some cases pass to rapid paralysis and death within a few months, while others show spontaneous recrudescence of symptoms, even many years after infection.

Furthermore, Vincent's examination of the cerebral spinal fluid of apparently healthy individuals having had syphilis has revealed in several cases an abundant lymphocytosis, and in some of these cases symptoms of tertiary syphilis of the nervous system shewed themselves some months after his examination. It is clear then that between the secondary and tertiary stages of syphilis there is no absolute pathological or clinical differentium, as regards the nervous system at least; in either stage the lesions may be absorbed and the structures involved may re-

sume their function if they are not destroyed by the inflammation of the arachnoid, which is the fundamental lesion of tabes dorsalis.

As regards the fibers emanating from the spinal and cranial ganglia, a destruction is definitive; for the secondarily degenerated fibers within the central nervous system cannot reintegrate; nor are the regenerated fibers within the roots capable of utilizing the *anlage* of a former course; hence, sensory losses of tabetics persist in spite of resolution of lesions.

*The action of exercises is purely educational.*—The return of functional capacity acquired by what is known as the Fraenkel exercises is not due to the rëestablishment of old nerve paths or the establishment of new channels of afferent information, as is so often supposed; but it is due to the patient learning volitionally to utilize the imperfect afferent information which is all that remains to him, and to create from it a new set of automatisms to replace those which now functionate in so disorderly a fashion as to create ataxia.

But when resolution occurs in the inflammatory focus surrounding peripheral efferent fibers, the functional efficiency of the diseased nerves may be resumed even although destruction of the nerve fibers has been complete. The reason is that the degeneration of an efferent neuron attacked while traversing the meninges is entirely peripheral; and as we know, peripheral neurons can regenerate completely and resume their accustomed path as long as there is no mechanical interruption in the course of the growing fiber. Hence the frequency of recovery from luetic paralysis of the cranial nerves which so often precedes tabes dorsalis. Their occurrence should be a warning of the need for proper treatment. A granulation cicatrix sometimes furnishes this obstacle; and then the loss of function is permanent as in the present case. (See author, "Treatment of Parasyphilis," *Month. Cyclop.*, January, 1910.)

# THE BROAD KERATOME IN THE REMOVAL OF A DISLOCATED LENS.*

By Arthur E. Ewing, M.D.,
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As the dislocation of the lens into the interior chamber and its removal were the steps that led up to cataract extraction, and as Daviel made use of the keratome for the first puncture of the cornea and then enlarged the wound with scissors, the probability is that there is nothing new in the procedure here described, although it is not mentioned in any of the modern standard works that have been consulted. In such dislocations, or in partial dislocation into the anterior chamber, the usual practice is to make an incision with a Graefe knife in the portion of the cornea in which it may best be placed in order to be certain of securing the lens. Sometimes it is advisable to pass a needle back of the lens before executing the incision in order to prevent it, should it be a small nucleus, from slipping backward into the vitreous.

In this particular instance the patient, now 44 years of age, had been under observation for ectopia lentis in each eye during a period of 26 years, the lens in the right eye being dislocated upward and outward and in the left eye nearly upward, and each respectively occupying about half the pupil. With the hypermetropia of the aphakic portion of the pupils corrected, vision was 20/120 in the right and 20/38 in the left eye, the correction rendering the eyes comfortable for all ordinary work. Eight months ago there was complaint of seeing at times a red spot in the upper portion of the field of the right eye, which had been noticed soon after a sudden fall that happened to the patient as he was throwing a ball in a bowling alley. The ophthalmoscope showed that the right lens had been loosened from above, was lying in the lower anterior portion of the vitreous and would float upward with a sudden movement of the globe. The eye being quiet and tension below normal it was considered best not to interfere.

After the lapse of about three months there came at long intervals brief attacks of blurred vision in the right eye. In the latter part of July, while on a tour through the west, the eye became suddenly inflamed and severely painful, and Dr. Foster at

*Read before the Ophthalmic Section of the St. Louis Medical Society, October 4th, 1911.

Denver was consulted, who informed the patient that he was suffering with glaucoma and that an immediate operation was indicated, at the same time prescribing medicine which gave relief. The operation was deferred and when the patient arrived at St. Louis, three days later, the globe was quiet, vision was 20/120, as heretofore, tension a little sub-normal, pupil normal and sensitive to light, and oblique illumination showed only a slight striated keratitis, which later disappeared.

On the morning of September 22nd he was awakened by severe pain in the right eye and discovered vision so blurred that he could not distinguish large objects. Six hours later when he arrived at the office, the lens was half way through the pupil and wedged firmly in the outer portion of the anterior chamber, the globe was hard and somewhat injected and vision reduced to motion of the hand at two feet. After the use of pilocarpin 1/120 several times in the course of three hours with a hope of preventing the lens from receding, its removal was effected by making the corneal incision to the temporal side in the sclero-corneal margin with a broad lance-shaped keratome, the point a rectangle, and passing the blade back of the lens, so as to fix the lens between the blade and the cornea. The fixation forceps being then exchanged for a Daviel spoon, pressure was made with this backward on the nasal portion of the cornea as the knife was slowly withdrawn, thus forcing the lens to follow through the wound on the anterior surface of the knife. When sufficient room was given in the wound by the receding blade the lens, a hard black nucleus, 4.5 by 6.5 millimeters in size, came away readily, and the final slow exit of the knife was followed by a moderate gush of aqueous and fluid vitreous. The wound closed promptly, the anterior chamber refilled immediately and the pupil replaced itself, clear but moderately eccentric to the temporal side. From the corneal wound a very little blood showed in the outer portion of the anterior chamber. Considerable pain accompanied the escape of the aqueous, suggestive of deep hæmorrhage. Although the patient was very quiet and reasonable this pain continued for half an hour before it ceased sufficiently to justify the adjustment of the final dressing. A restless but otherwise fairly comfortable night was passed, after which there was no further trouble, the wound healing readily so that the patient was dismissed from the hospital in eleven days, vision being 20/120, or the same as previous to the glaucomatous attack.

The keratome acted as the fixing needle, the knife for the corneal incision, and the cataract spoon, or loop, or forceps ordinarily employed for the delivery of the lens. With a pupil widely dilated, it is possible that a lens dislocated into the anterior portion of the vitreous, may be more safely removed in this way than by any other thus far devised, or the blade may be a very little withdrawn after the execution of the incision and the loop passed down in front of it, the blade being then employed as a support to the vitreous. For this purpose, or for the removal of the lens from the anterior chamber, a keratome should be used that is not less than 12.5 millimeters in width from one lateral angle to the other; the blade should be perfectly sharp, with its surfaces smooth and free from stains; also firm fixation is essential throughout every stage of the incision.

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## THE IMMEDIATE REMOVAL OF TRAUMATIC CATARACT.

John A. Donovan (*Jour. A. M. A.*, July 15, 1911) believes that when the crystalline lens is injured in penetrating wounds of the eyeball, in many cases it is wise to remove the cataractous lens. If the case is seen immediately, before much local reaction has taken place, it can be done at once either under local or general anæsthesia, preferably general. If the local reaction is already marked when seen, it is better to wait four to six days until the first reaction subsides somewhat and then remove it, under general anæsthesia, before the secondary inflammatory symptoms have become severe. The cataractous lens may be removed either by breaking it up and washing it out or by what is sometimes more successful a regular cataract extraction either with or without iridectomy. He prefers to do an iridectomy. In washing out the lens substance care must be taken not to break the zonula nor to wash out vitreous if the wound has extended into the vitreous. In children or young people the suction method may be employed, which can be done with an ordinary hypodermic syringe, taking care not to pass the needle into the vitreous. If the needle be turned so that the opening is in view it can be controlled better. Donovan uses as an antiseptic an ointment of 1 to 5000 mercuric iodid, filling the conjunctival sac with this. Argyrol is also of service to control infection. He reports a number of cases to illustrate the results of this method of treatment.

# COPIOPIA HYSTERICA.*

## WITH REPORT OF TWO CASES.

By Wm. E. Shahan, A.B., M.D.,
ST. LOUIS.

Copiopia hysterica† is a term introduced by Förster‡ many years ago to indicate a condition in which most of the *symptoms* of the accommodative asthenopia of hypermetropes were present, either in the total absence of such asthenopia, or in the presence of its complete correction. The condition so strongly simulates asthenopia that it is likely to be described, in such works as mention it at all, under the heading of Anomalies of Accommodation. The patient's symptoms of headache, of pain about the eyes and in the globes, "as if the eye-balls would burst", of ability to read only a short time without distress, and of photophobia, cause her to attribute all her troubles to eye conditions. Nevertheless the pathogenesis of the disease appears to have no ocular basis whatever, but to be dependent upon long standing disease of the uterus and its adnexa, with reflex irritation of the fifth and optic nerves.

Of the two cases observed one was a patient of my own, the other a patient of my Senior Associate, Dr. John Green. For various reasons the management of his case fell partly into my hands, and it was through consultation and conversation with him about the case that its real nature became known to me and I was able to follow it closely along rational lines.

The first case was a woman of 34 years; married 11 years; several children. Her complaint was of great sensitiveness to light, especially artificial light. "An awful lot of headache", of ability to read only a few lines at a time without discomfort. She said that her sight had not changed; that she "had always been near-sighted". This was her first attack and had begun eleven days before she came. Her lids were closed to a narrow slit and her general appearance was one of suffering, such as is often seen in superficial lesions of the cornea, but without lacrimation. Examination revealed not even a conjunctival hyperæmia. Her refraction was:

O.D. M 2:50 Am. 3.50 Mo. vert. V. 20/75+

*Read before the Ophthalmic Section of the St. Louis Medical Society, October 4th, 1911.

†From the Greek, meaning *sight exhaustion.*

‡Graefe-Saemisch, 1st edition, Vol. VII., 1, 1876.

O.S. M 2.50 Am. 3.50 Mo. vert. V. 20/75+
almost exactly what she had been wearing for three years. This was reviewed repeatedly but no improvement in vision could be obtained. The fundus R. and L. was normal except for a slight stretching of the choroid about the disc. The fields were somewhat contracted. (The element of hysteria in her case was rather marked.)

Pupils were rather large. "People had often noticed how large her pupils were." Tension normal O.D. and O.S. She came to my office at intervals from a neighboring town for five months. She recovered beautifully from the first attack under instillation of biborate of sodium alone (a purely psychic measure). But returned repeatedly at irregular intervals with renewed attacks, which were at their worst about the time of menstruation. Asthenopic symptoms were always present. "Could scarcely sew on a button without getting a headache."

Various medicinal, refractive and psychic expedients were resorted to in the attempt to give her relief—at one time ovarian extract was given on a theory of deficient ovarian secretion, but with ill rather than good effects. Pilocarpine instillations appeared to give some relief. Her family physician had charge of her general condition and depended largely on bromides and valerianates, with a probable amelioration of symptoms. She had a history of pain in her sides since the birth of her third child seven years previously, and of an operation "for the removal of the appendix and left ovary" fourteen months previously. Rest in bed and rigid control and supervision of gynecologic conditions by an expert was not possible in her case, and when last heard from her condition was not satisfactory, and probably will not be until such control is assented to, or until cure is brought about by the passing of years—as is generally said to occur.

The second case was much more satisfactory in that it was under complete control at all times. This patient was a woman of 21 years; married 5 years; no children. Her complaint was of severe pain in the head, "behind the eyes and in the eyeballs", inability to read without getting headache and eye-ache, and of photophobia—especially to artificial light. This had begun three months previously and at times the pain in the head and eyes, especially O.S, became so severe that she was given morphine by her family physician. She had a hypermetropia of 2 diopters and had been wearing +1.75 sph. for nearly a year.

No ocular condition was found that could account for her trouble. Vision perfect, fields normal, fundus normal R. and L., a slight homonymous doubling by Maddox test. Never at any time, even when great pain was complained of, was there any congestion, increase in tension or other pathologic sign about either eye. The severe pain in her head and eyes was accompanied by gastric disturbances, nausea, vomiting, etc., and for this she was referred to an internist. He in turn referred her to a gynecologist who reported, "an infiltration of the left parametrium and about the left adnexa and some endo-cervicitis", and advised "rest in bed and local measures, non-operative." It had already been discovered that she had had a curettement soon after her marriage, and for several years had had pain and tenderness in her left side. She was put into a hospital and while there had several very severe attacks lasting two or three days each. During one of these it was necessary to give her morphine or codeine. It is characteristic of such cases that any mental or physical disturbance may precipitate an attack. At one time she had a very severe attack which followed rushing down stairs in an unguarded moment to get a long distance telephone message. Another attack followed reading for an hour or two during a period of tranquility one afternoon. Her pupils were also larger than is normally seen, and pilocarpine instillations appeared to be of real value in this case, as also in the other, probably by shutting out some of the excessive light. Holocaine was also of value during the height of an attack, perhaps because of the different kind of pain it produced and the relief which followed. Gradually, under systematic treatment by the gynecologist, the attacks became shorter and less frequent. She was able to leave the hospital after about five weeks and had a few mild attacks following some psychic or physical disturbance. The gynecologic treatment was continued in her home town by a physician who took pains to get personal instructions from the expert. When last seen, four months later, she was much improved in every way and had had very little further trouble.

The photophobia in these cases is worthy of special note, in that it is most marked in artificial light, either electric, gas or petroleum. This would seem to indicate a hypersensitiveness to long light waves, which are preponderant in all such illuminants.

There are few text books in which attention to this affection is called. It is mentioned in an article by Dr. John Green in "A

Reference Hand-book of the Medical Sciences", in Fick's "Diseases of the Eye and Ophthalmoscopy", and in Fuchs' textbook. A very excellent description of it is to be found in the fourth edition of Vossius's "Lehrbuch der Augenheilkunde," p. 126, under the caption "Anomalien der Akkommodation."

The article by M. Parinaud in Norris and Oliver's "System of Diseases of the Eye" appears to give too wide a scope to it as it is there considered identical with the "painful accommodation" of Donders and the "hyperæsthesia of the ciliary muscle" of Nagel.

In an article in *La Clinique Ophtalmique,* No. 22, 1899, Königshöfer would employ the term *Copiopia Symptomatica* instead of *Copiopia Hysterica,* because he thinks it is never dependent upon a pure hysteria but is evidence of a series of irritations of the fifth and optic nerves due to disease or anomalies of the sexual organs, to neurasthenia, chlorosis or infectious diseases.

In conclusion it may be said that, as this is not fundamentally an eye disease, the importance of recognizing it and diverting patients afflicted with it into proper hands for proper treatment is evident.

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## INTRA-OCULAR NEOPLASMS.

### WITH A REPORT OF FIVE CASES OF NEOPLASMS AND ONE OF SIMULATED NEOPLASM.

F. Park Lewis (*Jour. A. M. A.,* July 15, 1911) reports three cases of glioma retinæ, one of intradural glioma of the optic nerve, one of melanosarcoma, and one of iridochorioiditis with occlusion of the pupil, simulating an intraocular tumor. Enucleation was performed on all of the cases with a recurrence in none of them to this date. The case of intradural glioma of the optic nerve is of particular interest because of the great rarity of glioma of the optic nerve. Complete exenteration of the orbit was done in this case because of the extensive involvement of the optic nerve and it was expected that recurrence would take place, but it has not so far although it may still do so.

The author believes that cases of malignant tumors of the eye should be reported so that these rare conditions may be more frequently brought to the notice of the general profession that the possibility of such conditions may not be lost sight of by the general practitioner.

# A FENESTRATED SIX DIOPTER CONCAVO-CONVEX AXIS DISK,

## WITH A 2½ DEGREE COMPLETE PROTRACTOR ON EITHER SIDE FOR NEUTRALIZING TORIC LENSES.

By John Neely Rhoads, M.D.,
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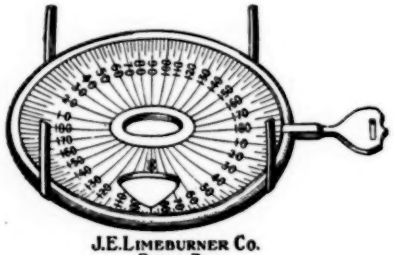
I believe that it is generally considered an annoyance to neutralize toric lenses. Most of us are satisfied to get the greater part of the motion and aberration under control, and are never quite sure of being within five degrees of the axis. Being told by a friend, George Brown, that a good way to overcome the difficulty was to make a small hole in a piece of paper and paste it on the lens, it instantly occurred to me to make the instrument as seen in the cut.



J.E. Limeburner Co.
Phila. Pa.

The instrument consists of a hard rubber disk with a six diopter convex and concave surface. Both surfaces are marked with a complete circular proctrator divided down to two and a half degree lines.

The disk has two holes in it, one in the middle and one halfway between the middle one and the circumference of the disk. The disk is an inch and a half in diameter. The center hole is seven mm. in diameter, and is about as small as can be used by most operators owing to the minus-pin-hole phenomenon. The other hole is oblong and should be about 7 mm. in its shortest diameter, and 10 mm. in its longest. The second hole has been made oblong in deference to the bifocal generally worn. It must be seen that this hole is for neutralizing bifocal segments.

The axis scale on the opposite side of the disk should be reversed. On the convex side it should begin with "0" to the right,

and number around to a hundred and eighty against the hands of the clock, and repeat on the other half of the circle, which exactly coincides with the trial frame markings in current use. The concave side should be numbered just the opposite, i.e., with the hands of the clock, which agrees with the optician's protractor. The scale is divided into two and a half degree spaces to agree with the standard suggested by me in the *Ophthalmic Record* of May, 1910.

In using this instrument for neutralization it is necessary to know which process you will use, that is which scale. If the optician's protractor is chosen it is necessary to slip the convex surface against the inner side of the glass. The 180 line should exactly coincide with the horizontal axis of the glass. When the instrument has been carefully adjusted on the lens, neutralizing toric lenses is as simple as flat ones. If the lens to be tested is one of your own returning for verification, simply place the disk in position, and take the cylinder and place the axis scratch right over the ordered axis, and then place the sphere on top of the cylinder and you will find that your lens will quietly neutralize, and that there will be none of that wild uncertainty which always accompanies the neutralizing of toric lenses when the aberrations are not cut off.

I believe a similarly made and marked disk but flat would be a great help in the rapid neutralizing of flat lenses.

I consider it important to have the disk placed in a trial ring, or in any event to have it in a ring the same as the trial ring, so that lenses in juxtaposition with it are centered with it.

It must be understood that not the least advantage of this instrument is its axis finding quality. An axis within two and a half degrees can be quickly determined. The fact is, that the axis is obtained without any effort. When all motion ceases the axis is on record, as the axis scratch on the cylinder indicates it.

# ABSTRACT OF AN ARTICLE ON THE CRYSTALLINE LENS AS FIGURED IN THE TEXT-BOOKS, AND AS SEEN IN THE EYE.*

By Dr. Lucien Howe,
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It is ordinarily supposed that the crystalline lens occupies the ideal position represented in the text-books, that the axis of the lens passes through the center of the cornea, and that the vertical and the horizontal diameters are exactly at right angles to that axis. Moreover, we usually take it for granted that during the act of accommodation the two surfaces of the lens become more convex, always in an equal and regular manner.

The object of this paper is to call attention to the fact, that most of these assumptions are not warranted, at least not in the majority of what we call normal eyes.

This statement naturally divides itself into the consideration of four points, which are:

I. The instrument for viewing the reflections from the two surfaces of the lens, the phacometer.

This is nothing more than a good telescope with appliances for measuring the positions which the entopic images have with relation to each other, and the changes which those images undergo during the act of accommodation.

The ordinary ophthalmometer can be transformed with slight modifications into a phacometer.

A model of the Tscherning's phacometer was shown with the modifications of it made by the writer. This consisted in an erecting eye piece, and in a head rest suitable for this and for many other examinations of the eye. This phacometer is figured in Tscherning's Physiologic Optics, page 44, fig. 32, and also in the article by Besio in the *Journal de Physiologie et de Pathologie générale, Juillet,* 1901, page 548.

II. Formulas for calculating the position of the lens, and the changes which it undergoes.

It requires ordinarily a rather long and tedious computation to calculate the position of the surfaces of the lens from the reflections. These calculations can be much abbreviated by the use of certain formulas used by Tscherning at the Sorbonne,

*Read at the meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Indianapolis, September 25, 1911.

and afterwards in other ophthalmological laboratories. In these formulas:

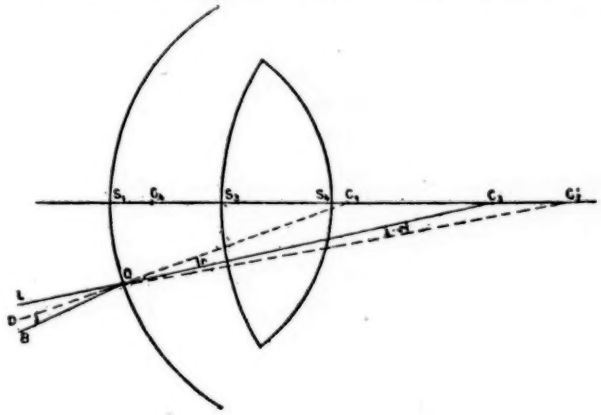
(A) represents the distance of the single light from the axis of the telescope.

(B) the distance of the double light, and

(C) the distance of the fixation point from the axis of the telescope.

In these formulas also $S_1S_3S_4$ represent respectively the anterior surface of the cornea, the anterior surface of the lens and posterior surface of the lens. $C_1C_3C_4$ represent respectively the centers of curvature of those surfaces.

With this understanding we have the following:



Refracting surfaces $S_1S_3S_4$ with their centers of curvature $C_1C_3C_4$.

$$S_1S_3 \text{ or depth of the anterior chamber} = R_1 \frac{A-B}{A-\frac{1}{4}B} \qquad (1)$$

For the distance of the center of curvature of this anterior surface behind the front of the cornea we have

$$S_1C_3 = R_1 \frac{C+\frac{1}{2}B}{C+\frac{1}{8}B} \qquad (2)$$

For the posterior surface of the lens

(*a*) For the position of this surface

$$S_1S_4 = R_1 \frac{A-B}{A} \quad +0.3 \text{ mm} \qquad (3)$$

(*b*) For the center of curvature of the posterior surface we have

$$S_1C_4 = R_1 \frac{2C-B}{2C} \quad +0.2 \text{ mm} \qquad (4)$$

It is a simple matter to make use of these formulas, and in a few minutes to calculate the position of either surfaces of the lens from the cornea.

III. The result of these measurements. It may be said briefly,

First, As to the position of the lens. It is very seldom in the ideal position shown in the text-books because

(*a*) The anterior end of its axis points temporalwards.

(*b*) The anterior end of that axis also points usually somewhat downwards.

Second, During accommodation the entire lens apparently moves slightly downward.

Third, As to the changes which take place in the two surfaces of the lens during accommodation.

(*a*) The posterior surface as a whole changes but little. This increase in its convexity though slight is quite regular.

(*b*) The anterior surface of the lens as a whole does change, and to a very decided degree. The curvature is not regular, but the central portion assumes a kind of conical projection or bulging forward.

(*c*) The curvature of parts of the posterior surface change irregularly as compared with other parts. This perhaps is also true of the anterior surface, but the relative position of the blurred reflection from this surface cannot be seen so clearly with any phacometer thus far made.

IV. Clinical importance of the mal-position or of irregular curvature of the lens.

It is evident that any displacement or irregularities in the surfaces of the lens will produce a certain amount of astigmatism. This was long ago recognized as lenticular astigmatism.

It is true that the astigmatism produced by displacement is usually only of a slight degree, probably not exceeding 0.75 diopters in most cases.

But the important point is that displacement or especially the varied and unequal changes in the surfaces call for correspondingly varied and unequal demands upon different portions of the ciliary muscles. Concerning this general proposition there can be no doubt.

Already a number of notes have been made which indicate that this subject is of very decided clinical importance in relation to those, as yet undefined symptoms called asthenopia. But those notes are not yet sufficient to warrant definite conclusions. A paper like this is quite long enough if it only attempts to indicate the instrument with which the observations are made, the formulas for making the calculations, the results obtained, and a mere glance at the clinical value which such observations have.

# MEDICAL SOCIETIES.

## SECTION OF OPHTHALMOLOGY,

ST. LOUIS MEDICAL SOCIETY.
Meeting of June 7th, 1911.

Reported by Dr. J. C. Calhoun, Section Editor.

Dr. M. H. Post in the Chair.

Dr. D. H. Luedde presented a case of *Irido-dialysis which showed a Straight Lens Margin in the Sector in which the Zonula fibers were ruptured,* with the following history:

Victor T. V. C., aged 15, was brought to me February 28th, 1911, about two hours after the right eye had been struck by a bullet from an air rifle. There was a superficial abrasion of the right cornea and an iridiodialysis on the temporal side. Under treatment the inflammatory symptoms gradually subsided. There still remains a localized opacity of the lens which is probably posterior and sub-capsular. Vision in that eye is equal to 16/30 with a minus 5/10 spherical and accommodation is about equal to 31/2 D. The left eye vision is normal; the vision is 16/12+; accommodation is 6 D.+.

The interesting feature in this case is that since the secondary pupil has become clear a straight lens margin is seen to extend along the temporal side joining the rounded equatorial portion with an obtuse angle above and below. In this sector of the lens the zonula fibers have been ruptured and this retraction of the lens substance has taken place. While having the patient change from distance to close vision with the other eye, I have watched very carefully for any change in the position of this lens margin which is clearly observable through the secondary pupil. I have not been able to make out a definite change in the position of the lens margin, even though the eye retains 3.5 D. of accommodation, nor could I notice any regular constant change in the angles at which this straight border joins that larger portion of the equator of the lens where the zonula seems intact. This suggests, though it is far from proven, that the lens in state of rest is under a degree of tension from the zonula fibers, that accom-

modation in this eye, which is only half of that in the other sound eye, is accomplished without marked change in the position of the lens margin. This further suggests that the mechanism of accommodation is probably not what it is supposed to be by the Helmholz theory. According to this theory there should be a marked retraction of the equator to accompany the thickening in the polar direction of the central or pupillary portion of the lens during accommodation.

Dr. Luedde further reported a case of *Complete reduction of a traumatic iris prolapse with eserin,* which recovered with perfect vision.

Eserin has long been in use for the prevention of prolapse of the iris in certain operative cases and in certain corneal ulcers which threatened perforation.

Of its use to reduce a prolapse that has already occurred, as in this case after an accidental injury, there seems to be no record. The following case becomes, therefore, sufficiently unusual to be interesting.

Mr. T. L., aged 34, a glazier, consulted me April 21, 1911, stating that an hour and a half before, his right eye was struck with a fragment of glass from a broken window pane which he was replacing. The wound had received no attention. The physician who first saw him had immediately referred him to my office when he noticed the pupil was distorted. Examination showed a small three-lipped incised wound, each branch of which was about 1½ to 2 mm. long, at the limbus of the lower temporal quadrant. Through this wound the iris was protruding, forming a cystoid mass about the size of a hemp seed.

After washing out the conjunctival sac with boric acid solution removing a few particles of dust, I instilled a 5 per cent. solution of cocaine and begun to prepare my instruments for replacement, or if necessary, abscission of the prolapsed iris. After a few moments when I looked at the eye, intending to repeat the anæsthetic, I found that the prolapse had grown the size of a small pea and that the pupil, which at first had been drawn downward and outward, was still further drawn in the same direction. Therefore, I did not instill the cocaine but substituted holocaine and followed it immediately with eserin solution (in oil 1/240). I repeated the instillation of the holocaine several times, noticing after several minutes a lessening of the amount of prolapsed iris in the wound.

By the time I had the instruments ready and the patient's face

prepared to proceed with the operative measures, the entire mass of the iris had been drawn into the eye and the pupil had become round and small under the influence of the miotic. I introduced the spatula into the wound to be sure that appearances were not deceptive, otherwise no operative treatment was attempted. Both eyes were bandaged. The patient was kept prone and removed by ambulance to the St. Luke's Hospital. He was kept absolutely quiet at the hospital for two days and remained entirely comfortable.

Three days later the pupil still was perfectly round, responded to light freely, there being no signs of adhesions.

On the fourth day he developed pain in the right eye, probably due to a beginning iritis. The wound in the cornea had entirely healed, the anterior chamber being restored the first day. I now used the homatropin solution 1/60, getting some relief from pain and producing fair and regular dilatation. There being no disturbance at the wound, I followed this by the use of atropin and cocaine (oil solution) with considerable relief from the pain.

On account of the pain it became necessary to use the atropin at frequent intervals for several days. The mydriatic was continued until the 17th day. The eye since then has remained perfectly quiet and free from pain except an occasional slight photophobia. The patient has gone to work without experiencing any discomfort. Vision in each eye is 16/10. He has H.M. 0.5.

When I last saw him I noticed a slight retraction of the pupil downwards and outwards which I am inclined to attribute to cicatricial contraction along the line of the injured radial fibers.

The pigment border at the pupillary margin was absent from this sector of the iris. A few pigment specs in the scar may be the remnants of this loss. So far they have occasioned no disturbance.

It has frequently been urged that these cases should be seen early. The report of such a case as this furnished additional ground for insisting that the physician who first sees a case of accidental injury to the eye should promptly refer those cases in which he does not feel certain of his ability to handle them properly. The credit for this excellent result belongs primarily to the physician who impressed it upon the patient that he must have special care at once. While the result was gratifying, I had not expected to get such prompt effect from the eserin. It

was used to counteract the bad effect of the cocaine. Cocaine solution is generally recommended in text-books for use in the attempt at reduction of hernia of the iris. Evidently it should not be used thus indiscriminately as it may render the operation more difficult or even impossible.

After the reading of a paper by Dr. Semple on *Green-Ewing Entropion Operation* (which will appear in a later issue) Dr. Luedde remarked:

As showing the success of the Green-Ewing operation where radical operations have failed, the following case is of interest:

Mr. A. W., aged 63, consulted me August 11th, 1907. Patient had "sore eyes" as a young girl. Was operated on for entropion by Dr. P., St. Louis, forty-five years ago by the complete removal of lid margin and cilia of both upper lids. Marked erosion and roughness of the superficial epithelium of the cornea with vascularization was present, causing considerable photophobia and low vision.

O.D. 15/75, O.S. 15/48 with correction. Treated lids for a time with some relief but erosion of epithelium recurred caused by the blepharo-spasm and the fine cutaneous hair of the upper surface of the lid which had been inverted by the prolonged cicatricial contraction of the conjunctiva. On September 5, 1907, an external canthotomy O.S. was done with some relief. The patient refused any more extensive operations on the lids. October 8th, 1908, external canthotomy was done on O.D. February 5, 1909, canthotomy repeated O.S. February, 1909, canthotomy O.D. Each time with temporary relief but no lasting benefit. August 13, 1909, deep central erosion of the cornea. Insisted that the Green-Ewing operation on left upper lid be done. The result was so satisfactory patient returned November 2, 1909, for the same operation on the right lid. Since then no further disturbance.

# ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. Shoemaker, M.D.,
St. Louis, Mo.

## TREATMENT OF PURULENT OPHTHALMIA AND SIMPLE MEANS FOR ITS PREVENTION IN INFANTS.

Mark D. Stevenson (*Jour. A. M. A.*, July 8, 1911) says that "a corneal ulcer, the chief danger in these cases (of purulent ophthalmia), is due either to the extreme virulence of the infection; poor nourishment of the cornea resulting from pressure strangulation, produced by local pressure of the swollen surrounding parts interfering with blood, lymph and nerve function; to direct pressure, a form of traumatism, by the undrained retained and, therefore, more injurious dicharges; or to ordinary injuries and abrasions of the corneal epithelium. The two last mentioned causes, and, to nearly as great a degree, the second, may be forestalled if free drainage is secured without causing possible injury to the cornea. Therefore, the policy of treatment should be guided by four considerations—the careful, but thorough, use of antiseptics which are of sufficient strength to destroy or inhibit the growth of the infectious bacteria, but which are not too irritating to the local tissues; watchful care over corneal and general nutrition; free drainage; and, especially, avoidance of even the slightest injuries to the delicate corneal epithelium."

Having made a bacteriologic examination of the secretion to determine the germ causing the trouble, he recommends a solution of silver nitrate, one to two per cent. in gonorrheal cases; antitoxin if the Klebs-Löffler bacillus is found; and weak solutions of sulphate of zinc, frequently used, if the diplobacillus is present. His method of using the nitrate of silver solution is to lift the lids away from the eyeball by means of some instrument suitable for this purpose, preferably large tenotomy hooks, one for the upper lid and one for the lower, taking care not to touch the cornea. The solution is then dropped into the conjunctival sac and allowed to bathe the whole sac for a half to one minute, the lid retractors being moved from one side to the other in the same direction. Then the sac is flushed out with normal

saline, saturated boric acid solution or sterile water. This should be done daily by the physician. He thinks the organic silver salts, such as protargol and argyrol, are much inferior to the silver nitrate. Good drainage may be obtained by the application of some bland ointment or liquified petrolatum, thus preventing the lids from becoming gummed together by the secretion. Between the daily treatments by the physician the nurse should see that good drainage is maintained, by gently separating the lids every hour or two and keeping the edges of the lids anointed with some bland ointment or oil. Secretions that have escaped between the lids should be gently wiped away with a moistened piece of gauze or cotton, but the secretion should not be wiped out of the eye-sac as the cornea may thus be injured. He no longer washes out the conjunctival sac so frequently to remove the secretion as he used to do, believing it unnecessary, and tiring to both patient and nurse. Moreover, there is danger of injuring the cornea, especially when done at night or with a poor light. In adults the treatment is similar to that of infants, except that a one per cent. solution of holocain or a four per cent. solution of novocain may be instilled several times before the nitrate of silver solution is used, and cold applications may be desirable after the silver solution has been used. Stevenson recommends the use of one or two drops of a one per cent. silver nitrate solution in the eyes of new born babes as a prophylactic in all cases where there is a suspicion that the mother is infected. In addition he advises to instil one drop of the same solution in each nostril and to wipe out the buccal cavity with a piece of sterile gauze wrapped about the little finger. Care should be taken to prevent subsequent infection. While it is doubtless advisable that routine prophylaxis be employed in lying-in hospitals, the author does not favor this arbitrary rule in private practice where the physician knows his patients. At the same time the accoucheur should feel his responsibility and the necessity of his determining accurately in what cases prophylaxis should be used.

## AN IMPROVED METHOD FOR THE EXTRACTION OF THE IMMATURE CATARACTOUS LENS.

H. E. Smith (*N. Y. State Jour. of Med.*, May, 1911) describes his operation which differs in two particulars from the usual extraction operation. Taking a firm and deep grasp with the fixation forceps on the conjunctiva just below the insertion

of the internal rectus muscle, a knife with a blade the shape of a miniature scalpel is thrust through the cornea about the middle of the supero-temporal quadrant and the blade carried down to the lower edge of the dilated pupil, its edge being toward the operator. The handle is then made to describe the arc of a circle away from the surgeon, and a cut is made through the capsule up to the upper limit of the pupil, the blade, then slightly withdrawn, is carried over to the inner side of the mid-pupillary space, the same maneuver repeated and a cut made in the capsule at right angles to the first. The blade is then turned into the same plane as its entrance and is withdrawn. If for the left eye the operator stands on the left side of the patient, the fixation is just above the internal rectus and the knife entered into the infero-temporal quadrant, the cut in the capsule then begins at the upper limit of the pupil. The procedure otherwise is the same. After the capsulotomy the conjunctival sac is flushed with an antiseptic lotion, the patient given a hypodermic of one-fourth grain morphin and put to bed. He is allowed to remain there from four to six hours before the extraction proper is performed. This does not differ from the ordinary method, but the corneal section should be ample, for most immature cataractous lenses are large. The period of waiting and the method of capsulotomy are the two essentials of this operation. During the waiting period the capsule, having been amply divided, curls away from the cortex and allows the aqueous to insinuate itself between this and what remains of the enveloping capsule, causing a separation between the two. That this is true is seen by the ease with which the later delivery of the lens is always accomplished, and its clean, full and smooth outlines when it does come out.—*Jour. A. M. A.*

## CLASSIFICATION OF DIPHTHERITIC CONJUNCTIVITIS.

### REPORT OF A CASE WITHOUT MEMBRANE FORMATION.

Harry Friedenwald (*Jour. A. M. A.*, May 20, 1911) reports a case of severe conjunctivitis without the formation of a membrane in a man 56 years of age. The trouble was chiefly in the inner canthus of the right eye at first. Treatment with argyrol not giving any relief, a bacteriological examination of some of the secretion was made which showed bacilli present, but what kind could not be determined from the smear. The naso-phar-

ynx soon became involved with the formation of a typical diphtheritic membrane. A culture made from a smear taken from the pharnyx developed a typical growth of diphtheria bacilli which were identical with those found in the smear taken from the eye. There was slight elevation of the temperature of the patient and considerable depression in his physical condition. There was no purulent secretion in the eye. The cornea became involved, a mild ulcer developing in time. Under the use of antitoxin the patient's condition improved, and in time both the eye and naso-pharnyx symptoms disappeared. The author says: "The peculiar course of this disease and the finding of the diphtheritis conjunctivitis without membrane formation, in spite of bacillus in the smear, though at first not recognized as diphtheria, with the undoubted diphtheritic appearance of the nasal and pharyngeal inflammation, seem to establish this as a case of diphtheritic bacillus in the fauces and the discovery of the same of the absence of the more convincing tests." He agrees with Schirmer, Fuchs and Luedde that the old classification of conjunctivitis should be changed and that the term "diphtheritic" should be applied only to those inflammations caused by the diphtheria bacillus.

## THE AUTOLYSIS OF THE CRYSTALLINE LENS.

### A PRELIMINARY REPORT.

C. A. Clapp (*Jour. A. M. A.*, March 18, 1911) does not agree with Parsons' theory that, after the swelling up of the lens fibres by the action of the aqueous upon them, they are carried off by the leukocytes, since there are very few polymorphonuclear leukocytes present unless there be infection. Neither does he believe that Marcus Gunn's suggestion, promulgated by de Schweinitz, can be true, since seventeen per cent. of the thirty-five per cent. of albumins in the crystalline lens are insoluble albuminoids and hence could not be dissolved by the weak saline of the aqueous. The cause of the opacity of the lens after rupture of the capsule is easily explained when it is remembered that so large an amount of the solids of the lens is made up of insoluble albuminoids which would be quickly precipitated when the aqueous is admitted by the rupture of the capsule. In cases where the capsule is not ruptured but where the lens becomes opaque from mere concussion, some of the lens fibres are evidently ruptured and the lens lymph acts on the insoluble albu-

minoid the same as the aqueous. The manner in which the insoluble albuminoids are changed so that they become soluble and can be carried away by the aqueous is of great interest. Clapp believes that an autolytic action takes place in the lens substance after the fibres are ruptured and broken up. Such autolytic action takes place in most of the organs and tissues of the body under favorable conditions. He has made some experiments with the lenses of calves' eyes which seem to show that after about three months the amount of soluble nitrogen in macerated lenses, kept under proper conditions, increased constantly until after about six months, when it was about twice what it was at first. He says in conclusion:

If further investigation confirms my preliminary findings, then I think that it is safe to say that when the lens fibres are broken up they undergo autolytic changes. Whether this is increased by the action of some specific enzyme in the aqueous or whether it is due entirely to autolysis, it is difficult to say. If this be a ferment, then what is its source? Is it produced through the breaking up of the lens fibres, or is it derived from the circulating lymph? These questions I cannot answer.

These results coincide nicely with the facts as we know them. The lens of the young is much more easily liquified and carried off, from the fact that there is less of the insoluble albuminoid present and the enzymes are all very active. In the aged, on the contrary, there is a much larger amount of the insoluble portion and all of the enzymes are relatively weak.

## VACUUM FIXATION OF THE LENS AND FLAP SUTURE IN THE EXTRACTION OF A CATARACT IN ITS CAPSULE.

Vard H. Hulen (*Jour. A. M. A.*, July 15, 1911), discussing the advantages of his method of removing the cataractous lens with the vacuum lens-in-capsule extractor, which has been previously described, mentions the following steps in the operation:

1. The usual preparation of the patient and eye with the preliminary dilatation of the pupil.

2. Cocain and epinephrin are used for local anæsthesia and blanching.

3. The speculum is introduced and section made in the limbus, which should include one-half of its circumference, and raise the conjunctiva above but stop short of severing the flap; a fine silk

suture is introduced; then the bridge is cut with one snip of the scissors.

4. Now the iridectomy is performed if a preliminary one has not already been made; a preparatory iridectomy is always desirable.

5. The speculum is next removed and if blood in the anterior chamber obscures the pupil it should be washed out with a gentle stream of warm saline solution.

6. The assistant holds the upper lid with a lid hook and controls the lower with the thumb of his other hand. Under no circumstances must he permit pressure on the globe until the eye is finally closed; the patient at the same time should look straight ahead, *never down*.

7. The cup of the vacuum extractor is introduced from the side through the section and gently placed on the anterior capsule over the center of the lens. If the pupillary margin is everywhere free the nurse is directed to turn the cock at the gauge. The vacuum cup will then grasp the cataract most rigidly. Now the lens should be slightly lifted and rotated on its anterior posterior axis to sever the suspensory ligament; then with the upper edge slightly advanced the cataract in its capsule is slowly and gently lifted out through the pupil and section.

8. The suture is immediately tied. Safe from the loss of vitreous, we may now replace the edges of the coloboma with the iris repositor (introducing it to each side of the knot) and perform the usual toilet of the eye without apprehension.

## DISTORTIONS OF THE VISUAL FIELDS IN CASES OF BRAIN TUMOR.

### (*Second Paper.*)

#### DYSCHROMATOPSIA IN RELATION TO STAGES OF CHOKED DISK.

Harvey Cushing and George J. Heuer (*Jour. A. M. A.,* July 15, 1911) summarize their most interesting paper as follows:

Out of the 123 cases in our tumor series in which perimetric observations could be made, fifty-three showed simple color-interlacing or inversion with more or less constriction of the field boundaries.

In ten of these fifty-three cases the dyschromatopsia either actually preceded any recognizable ophthalmoscopic change in the eye-grounds or accompanied most incipient stages of choked

disk. These distortions of the color boundaries, therefore, promise to be of some service in the making of a more precocious diagnosis of an increase of intracranial tension than is commonly ventured on. Thus, in a number of cases of early tumor extirpation, color inversion and interlacing, in addition to attacks of Jacksonian epilepsy, were the only clinical indications of the lesion.

We have attempted to correlate the perimetric deviations, observed before and after operation, in the remaining forty-two cases of simple dyschromatopsia, with the accompanying grades of choked disk subdivided into six groups according to Marcus Gunn's classification. Until the perception for colors is completely lost, inversion or interlacing is often apparent, even in the greatly constricted color peripheries characterizing the advanced stages of choked disk.

Though permanent achromatopsia is usual, total loss of vision is by no means inevitable even when the process has advanced into Gunn's fifth stage.

## TOTAL BLINDNESS FROM THE TOXIC ACTION OF WOOD ALCOHOL, WITH RECOVERY OF VISION UNDER ELECTRICITY.

S. Lewis Ziegler (*Pa. Med. Jour.*, May, 1911) summarizes the points of interest observed in his case as follows:

1. There was total loss of vision for almost two months.
2. The disk showed no sign of œdema but was constantly blanched and atrophic during this period.
3. The visual power returned soon after revascularization of the nerve-head under the stimulating influence of negative galvanism.
4. The continued improvement of vision and widening of the fields during the past eight months show that the danger period of secondary shrinkage has been safely passed.
5. The lesions that were present in this case appear to have been the result of an acute corrosion of the nerve fibres, without inflammation, early œdema or subsequent strangulation.
6. The specific value of negative galvanism has been amply demonstrated by the increased hyperæmia of the nerve-head, by its stimulating effects on the nerve fibers themselves and by the consequent improvement in vision, which is now two-fifths of normal and still advancing.

## DETACHMENT OF THE RETINA, WITH REPORT OF A CASE SUCCESSFULLY TREATED.

George B. Jobson (*Pa. Med. Jour.*, May, 1911) calls attention to a diagnostic point observed by him where the retinal detachment extended to the ora serrata, which he has never seen described heretofore. He says: "When the ciliary region opposite the detachment is palpated, a well-marked protrusion of the iris occurs beneath the finger until the pupillary border is straight." In his case, that of a stenographer, twenty-five years of age, with retinal detachment in the inferior quadrant, after medicinal treatment for five weeks with the patient in bed, without any benefit whatever, a posterior sclerotomy with puncture of the retina, followed by the subconjunctival injection of thirty-minims of normal salt solution on alternate days, instilling in the eye on the intervening days a ten per cent. solution of dionin with atropin, during a period of three weeks, resulted in a complete reattachment of the retina with normal field of vision.

## AN INDEX TO THE GENERAL BLOOD-PRESSURE, THE VENOUS PULSE AND BLANCHING OF THE RETINAL VESSELS INDUCED BY PRESSURE ON THE EYEBALL.

Mellville Black (*Jour. A. M. A.*, July 29, 1911), after four years of careful observation, finds that he can estimate the blood pressure quite accurately by noting the effect of making pressure on the eyeball with the finger while making an ophthalmoscopic examination. In a young person where the bloodvessel walls are soft and pliable pressure thus made on the eyeball, by increasing the intraocular tension, will first cause pulsation of the retinal veins at the disk, then a diminution of the size of the retinal arteries, the veins becoming almost empty. Where the vessel walls are less resilient, as in old age, this is much less marked and where the vessel walls are very hard the pressure on the ball has no perceptible effect on the retinal circulation. This test is of little value in old people as their vessel walls are hard as a rule, but in young or middle aged people it is of considerable service, as if such pressure does not materially affect the retinal circulation it may be taken for granted that the blood pressure is high and there is some hardening of the vessel walls. Proper treatment of such an individual may be of great service. Black states that this test should not replace the test with the sphygmomanometer, but on the contrary it indicates that a careful estimation of the blood pressure should be made by the use of this instrument.

## OBITUARY.

It is with the greatest regret, and a deep feeling of personal loss, that we have to record the death of Dr. Blencowe E. Fryer, of Kansas City, Mo., which occurred on August 13th. We shall sorely miss him as a warm and sincere personal friend, whose place will henceforth remain vacant.

B. E. Fryer for the largest part of his career was connected with the medical service of the U. S. Army. He was a highly cultured, well educated and well posted gentleman. He was, also, a prominent physician and ophthalmologist, as shown by the many positions of honor and the large practice which he enjoyed. Although he was a collaborator of this Journal from its beginning, he has not contributed many articles; but whatever he did contribute was valuable and showed that he was a good observer, a scholar and a conscientious scientific worker.

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Dr. Alvin A. Hubbell died August 10th, at Buffalo, N. Y.

Dr. Hubbell was professor of ophthalmology in Buffalo University, a well known oculist and a frequent contributor to the different ophthalmic journals. Recently he wrote a book on the Development of Ophthalmology in America from 1800 to 1870, which was well received by the profession. At his death he was engaged in writing a work on Daviel.

Dr. Hubbell held a great many positions of honor in the profession, which attests the high esteem in which he was held. In 1908-09 he was Chairman of the Section of Ophthalmology of the American Medical Society.

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## BOOK REVIEWS.

OPHTHALMIC MYOLOGY, A SYSTEMATIC TREATISE ON THE OCULAR MUSCLES. By G. C. Savage, M.D. Eighty-four illustrative cuts and set plates. Second edition. Published by the Author, 137 Eighth Ave., North, Nashville, Tenn.

Like the previous publications of Savage, this new edition of Ophthalmic Myology is worthy of the close perusal of every ophthalmic student. The manner in which he succeeds in strengthening his position and his opinions, which are in contrast to those of Helmholtz and others, is certainly worthy of our careful attention.

A Pocket Atlas and Text Book of the Fundus Oculi, with note and drawing book. Text by G. Lindsay Johnson, M.A., M.D., F.R.C.S.; with drawings from life by Arthur W. Head, F.Z.S., London. Adlard & Son. Bartholomew Close, E.C. 1911. Price 10½ shillings.

A very useful pocket book which gives first a description of the various ophthalmoscopes and the methods of using them, not only for viewing the fundus oculi but also for measuring the refraction. Then follows a chapter on the anatomy of the choroid, ciliary body and retina. These chapters have brought the student so far that he can recognize diseases of the fundus by comparing the abnormal with the normal, and the beautiful illustrations as well as the concise description will make it the easier for him. Drawing what he sees will force him to look carefully at all the details and to encourage him in this a small drawing book is added. Alt.

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## PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY.

During the week of Professor Fuchs' course of lectures given at the Medical Department of Stanford University, the Pacific Coast Oto-Ophthalmological Society effected a permanent association for the advancement of their specialty. At the time this permanent organization was effected, forty members were enrolled. Primarily this Society will be made up of practicing specialists of Washington, Oregon and California. They will meet every year in one of the three States and at the same time as the State Medical Society. The first meeting will be held in the State of Washington (date and place to be arranged later).

To become a member of the Pacific Coast Oto-Ophthalmalogical Society, it will be necessary for the applicant to have the signature and seal of the Secretary of the County Medical Society in which such applicant resides. The dues, $2.50 a year, payable January 1, 1912. By sending in your application before January 1st, 1912, you become a charter member. Officers for the ensuing year:

President—Dr. John F. Dickson, Oregonian Bldg., Portland, Oregon.

Vice-President—Dr. Wm. H. Roberts, Pasadena, California.

Executive Committee—Drs. Wm. A. Martin, San Francisco, Cal., one year; Henry La Motte, Seattle, Wash, two years; John F. Dickson, Portland, Ore., three years.

Secretary and Treasurer, Dr. Cullen F. Welty, 210 Post street, San Francisco, Cal.

Address all communications to the Secretary.